

# BULLETIN

The energy and planning resource for Western utilities

## SMALL TOWN REDUCES BIG DEMAND CHARGES THROUGH SELF-GENERATION

**D**evelopment of a renewable energy project is governed by circumstances specific to that site, and the reasons for building the generation are often just as unique. For the little town of Neligh (pop. 1,600) in northeastern Nebraska, renewable energy offered a creative path to avoiding high peak demand charges.

The city installed a 6.5 megawatt bio-diesel electric generation plant—one of a kind in the state—in 2012. The generation capacity allows Neligh to purchase economical electricity from outside entities while using the bio-diesel generators for peak electric demand and emergencies. Self-generation saves the city a wholesale electricity supplier demand charge.

"The bio-diesel generation has been a great savings for our community, and a safety net for Neligh and the surrounding communities," commented former Mayor Jeri Anderson, who left office at the end of 2014. "Neligh can



A front south view of the Neligh Electric Generation Plant. (Photo by Roxanne McNally)

generate to help the capacity loads for other communities in emergency situations, and it is a great backup energy resource for us."

### SEARCHING FOR SOLUTIONS

For large electricity customers, demand charges—that fee your power provider adds to your bill for your highest energy use—can be notoriously tricky to control. Efficiency reduces the overall amount of energy a facility or community uses. However, an unexpected event like a large manufacturing order or extreme weather can cause the need for electricity to spike, and that need must be met. For years, Neligh bought expensive wholesale power to meet peak demand and emergencies, resulting in monthly

supplier demand charges of around \$50,000.

Besides reducing demand charges, the city also wanted to purchase low-cost "economy energy" from the Municipal Energy Agency of Nebraska (MEAN). Economy energy is the standby reserves that large generators always have on hand to meet sudden demand. To offset the cost of producing this energy, the generators sell it to various buyers on an hourly or day-by-day basis. Under the state Power Review Board (PRB) rules, a city may buy economy energy if it owns generation capable of producing 115 percent of its demand. Clearly, it was not difficult for Neligh to make a business case for building its own power plant.

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## ANSWER IS GREEN

The problem with that solution was that a private investor cannot own a generator in the all-public power state of Nebraska. Also, the PRB must approve all new generation, which places the burden on cities and villages to prove a verifiable need for additional generation. That is a difficult hurdle to clear in a state that has plenty of generation capacity.

A potential loop-hole opened several years ago, when a hog farmer installed a methane digester generator and petitioned the PRB to sell his excess power to Nebraska Public Power District. The board determined that since this energy was renewable—"green"—it was regulated by FERC, so the PRB had no authority to rule either way on the sale. "When I learned of the decision, I began researching green energy systems that Neligh could install," said City Attorney Jim McNally.

A bio-diesel generator of less than 40 megawatts met the PRB's criteria, and Neligh was issued a permit to build. Mayor Joe Hartz attributed the



Generation Supervisor Josh Capler syncs generator #3 into the Neligh Electric system to bring the motor online. (Photo by Roxanne McNally)

outcome to a strong relationship with NPPD and to cooperation between Neligh's municipal utility, NPPD and MEAN. "That allowed us to provide the best of all worlds for our customers," he said.

## LOGISTICALLY, ECONOMICALLY FEASIBLE

The installation itself was a straightforward project, since the generators are conventional diesel equipment. It is the fuel—100-percent soy oil in Neligh, rather than fossil fuel—that qualifies the project as renewable. Only the rubber hoses had to be changed out on the four used Caterpillar generator sets. Because the fuel tends to jell when cold, the plant is housed in a heated building.

The city paid a little more than \$3 million for the generators and some lightly used controls, financing the purchase on a 15-year bond. The power plant now qualifies Neligh to purchase economy energy from MEAN, but more importantly, having its own power supply has saved the city from

paying demand charges. "In place of the \$50,000-per-month demand charge, we have a monthly bond payment of about \$17,000 for the equipment," McNally explained. "The city nets around \$30,000.00 a month in savings, or \$300,000 annually after the bond payment. That is significant for a city of 1,600."

The attorney added that Neligh's new access to the economy energy market is what makes the renewable aspect of the project economically viable. "Wholesale power in Nebraska is less expensive than self-generation with either diesel or biodiesel," McNally acknowledged.

Potential environmental regulations could change the equation, but McNally believes the bio-diesel generators will continue to be a net winner for the city budget. The little city of Neligh should not have any problems handling whatever the future holds. Volatile prices and new rules are no match for ingenuity and savvy planning. ⚡

## ENERGY SERVICES BULLETIN

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**ENERGY  
SERVICES**  
Western Area Power Administration

# TRISTATE MEMBERS GET CRASH COURSE IN RESIDENTIAL ENERGY AUDITING

A home energy audit can do many things for a utility, from soothing an upset customer to reducing overall demand. To help its members realize the full range of benefits from their audit programs, TriState Generation and Transmission Association recently hosted a free two-and-a-half-day workshop on residential energy audits.

The intensive workshop offered a thorough overview of the many factors that affect residential energy consumption. Attendees also learned how to calculate energy savings from typical efficiency upgrades, so important for helping consumers decide how to spend their home improvement dollars.

The crowd of more than 30 participants included TriState's five relationship managers and representatives from Western, all of whom joined in the class work. "I think we may have set some kind of attendance record," observed instructor Jim Herritage of Energy Auditors Inc., the energy services company that presented the training.

## WHAT MEMBERS NEED

Most of the attendees were member services representatives, key account managers or energy management specialists. Some utilities have a long-established home auditing program, while others were just thinking about starting one. Experienced energy auditors from utilities such as Mountain Parks Electric Inc. and United Power came to brush up on their knowledge. "This is a really affordable way to get my CEUs [continuing education units]," said Rob Taylor, a key accounts manager for Mountain Parks. "You could take this class three or four times and still learn something."

Many in the class, however, were attending their first training on the complexities of the home audit. Donna Venable of Continental Divide Electric Cooperative in Grants, New Mexico,



Following a long day in the classroom, workshop attendees discuss their experience with audit tools available from Western's Equipment Loan Program. (Left to right: Instructor Jim Herritage; Western Equipment Loan Manager Gary Hoffmann; Tim Grablander, Cherry-Todd Electric; Andy Molt, Y-W Electric; and Alantha Garrison, Gunnison County Electric.)

was among those who had been doing audits only a short time. "We are starting an audit program because rates are going up and customers are complaining," she stated. "Customers are also getting a lot smarter about energy and asking tougher questions."

TriState Relationship Manager Gary Myers explained that the class was intended primarily to help member systems with less auditing experience. "I was getting a lot of calls from members about energy audits," he said. "TriState has five relationship managers for 44 members in 200,000 square miles of territory. As much as we would like to, we can't always provide technical assistance in person."

A more practical approach was to bring co-op member services staff to one place to learn the basics of home energy auditing. "If we all learn the same concepts, steps and formulas, we can all speak the same language," said Myers. "Our members may still call with questions, but it will be a lot easier for us to answer them."

## CURRICULUM EVOLVES

Even a "basic" walk-through energy

audit has many components and a laundry list of interrelated aspects the auditor must keep in mind.

The college-level class covered fuel characteristics, efficiency terms, heat behavior, the thermal envelope, types of insulation, caulking and weather-stripping, water heating, ventilation and energy-related math. To begin, each participant received a workbook and, most importantly, an Energy FactMonster, a laminated "cheat sheet" with terms, basic values and formulas.

The workbook contained a home energy audit checklist that Herritage said changes with each class. As the class went through each item, participants did, in fact, speak up with suggestions to add to the list. Member Services Director Andy Molt of Akron, Colorado-based Y-W Electric Association, introduced the term, "family living dynamics," that was promptly added to the class lexicon, as well. "It describes how situations like having a new baby or an aging parent in the home might change the way a family uses energy," he explained.

*See CRASH COURSE, page 4*



## HARD, FAST RULES

Herritage said that he learns from every class and that the syllabus keeps evolving, but certain principles remain the same.

Energy auditors must always remember that their business is to empower customers to understand their own energy use. And that understanding can only be gained by approaching the building as a whole system, rather than focusing on the parts separately.

Herritage recommended that participants begin every service call by asking themselves three questions:

1. Is there a problem?
2. What is the nature of the problem?
3. How do I fix it?

Get to the bottom of these questions, and chances are you will have a satisfied consumer. Just as important, your consumer will be likely to have a better understanding of his energy use.

When customers decide to make an improvement or repair, the best way to get the expected results is to hire technicians who have been certified by North American Technician Excellence. Too often, Herritage explained, on-the-job training is handed from technician to technician, and may date back decades. "Today's high-efficiency systems must be maintained by people who studied the technology, not just each other," he said.

## EVERYONE BENEFITS

At the end of the training, participants took a test and received a diploma, but the real takeaways were the intensive study, lively discussions and a clearer understanding of the audit process.

Participants with no auditing background discovered a new set of tools. Customer Service Representative



Joy Manning of High West Energy and Nancy Andrews show off their diplomas for completing Residential Energy Auditing, v.5.01.

Alice Morrison, one of six employees Sangre De Cristo Electric Cooperative sent to the workshop, was surprised at how much the class covered. "A lot the material was over my head, but I'm learning so much," she admitted. "Now when customers call, I'll have a whole new frame of reference to deal with their questions."

Susan Kroll, who has built a strong residential audit program for Intermountain Rural Electric Association, called the workshop the best auditor training she has attended. "It was good to hear that other auditors have the same concerns as I do. Learning more about the science behind steps we go through automatically will make it easier to explain our recommendations to the customer," she added.

Tim Grablander, general manager of Cherry-Todd Electric Cooperative in South Dakota, hopes to use home energy audits to make positive connections with residential customers. "Too often, we only see low-income consumers when they come in to pay a bill to get the electricity back on," he acknowledged. "We would much rather help them lower their bills and keep the electricity on in the first place."

Cherry-Todd is a member system of Basin Electric Cooperative, which cosponsored the workshop and plans to host one in its territory next fall. Myers considers basic audit training a good investment for wholesale power suppliers. "This workshop is helping TriState extend its workforce to better serve our consumers," he declared. ⚡

# CITY OF PALO ALTO UTILITIES SCORES TOP MARKS FOR CUSTOMER SATISFACTION

*E Source Announces Top Utilities in Large Business Customer Satisfaction*

In a recent nationwide survey conducted by E Source utility energy efficiency research group, utility large business customers gave top marks to the City of Palo Alto Utilities.

Among small and midsize utilities, the Western customer ranked number three for utility satisfaction, thanks to superior marks for its account management team. This is the first time in the study's six-year history that E Source separated utilities into two categories based on size.

For the fourth year in a row, CPAU has earned a top three ranking for customer satisfaction with a utility. CPAU's large business customers were particularly pleased with their account representatives' effective communication skills and customer service.

Now in its sixth year, the annual benchmark survey polls utility customers throughout the nation to gauge general satisfaction for communication, affordable rates, reliability and safety. Participants are asked to identify the top priorities for outstanding customer service among utility key accounts and measure how close their

utilities come to meeting those expectations. The results are based on survey responses from more than 1,000 large business customers of 25 North American utilities.

This year's survey respondents identified reliability as the attribute they considered most important for utilities. E Source Market Research Manager Rachel Cooper observed that customers consistently rate reliable energy, low prices and emergency communications as the most important utility services. "Having a utility that's trustworthy is also extremely important for these customers, particularly when it comes to supplying energy-efficiency advice," she added. "Large business customers most commonly chose their utility when asked to indicate who they most trust to provide this type of advice."

Western congratulates CPAU on its strong showing in the survey. The Northern California municipal utility frequently earns recognition for its energy-efficiency and renewable energy programs, but the greatest honor is hearing your own customers say you are the best. ⚡



# HIDDEN ENERGY WASTERS HURT EFFICIENCY IN COMMERCIAL BUILDINGS

**C**ontrolling energy consumption in large commercial buildings can yield big rewards for both the owners and their power providers. Taking the long view, efficient buildings also contribute to the health of the occupants and the economy, too. So why are buildings still wasting as much as 50 percent of the energy that flows into them?

According to the Panoramic Power blog, one of the culprits is secret energy wasters—building systems that are not maintained or used properly. The article cites studies that have shown how continuously monitoring and adjusting operations and implementing just a few energy-efficiency strategies can reduce a building's energy use by as much as 30 percent.

Common—and often undetected—energy wasters include:

- 1. Lighting rooms where daylight is sufficient:** This can also cause the HVAC system to work harder, wasting more energy.
- 2. Systems that continue operate after business hours:** It's 7 p.m. Do you know if your lights and HVAC systems are still on?
- 3. Performing unnecessary maintenance:** Working on a system that doesn't need maintenance can actually be an energy drain. Build your maintenance schedules around performance data to promote energy efficiency, reduce downtime and improve overall performance.
- 4. Running equipment that is not in use:** If the device has a built-in power management feature that automatically induces sleep cycles when it is not being used, make sure the feature is activated. Check into "smart" monitors and power strips to control older devices that do not have built-in power management.



- 5. Heating against cooling:** An over-cooled office may cause employees to run space heaters under their desks, causing a vicious circle of energy waste.
- 6. Overlighting:** More is not always better when it comes to lighting. Use resources from the Illuminating Engineering Society to determine the appropriate lighting levels for your needs.
- 7. Insulation is NOT forever:** Schedule periodic inspections of all piping, ducting and equipment to look for damaged or degraded insulation and possible energy leaks.
- 8. Filthy filters:** Clean and replace filters on HVAC equipment frequently during high-use periods. Dirty filters are an expensive mistake, and lead to poor indoor air quality, too.
- 9. Blocked vents:** A chair or file cabinet blocking a vent can cause your ventilation system to use as much as 25 percent more energy to distribute air.

## 10. Overriding Building

### Management System settings:

Everything works better if you use it as intended. When occupants override the building's automated controls—for a weekend meeting, for example—energy waste is quick to follow.

Some of these energy wasters can be stopped with simple, low-tech solutions like opening blinds during the day and regularly replacing filters. Other systems will require more advanced monitoring, data analysis or even recommissioning to correct. Even if you have a building energy manager, a consultation with a certified technician may be worth the investment.

Key account managers should keep a checklist of best practices for stamping out energy waste close at hand to share with commercial customers. Ultimately, it is crucial to remind building owners that monitoring all the energy-consuming equipment and systems in the building is the best way to catch and stop energy waste before it shows up in a large utility bill. ⚡



# FEMP OFFERS RENEWABLES MANAGEMENT TRAINING

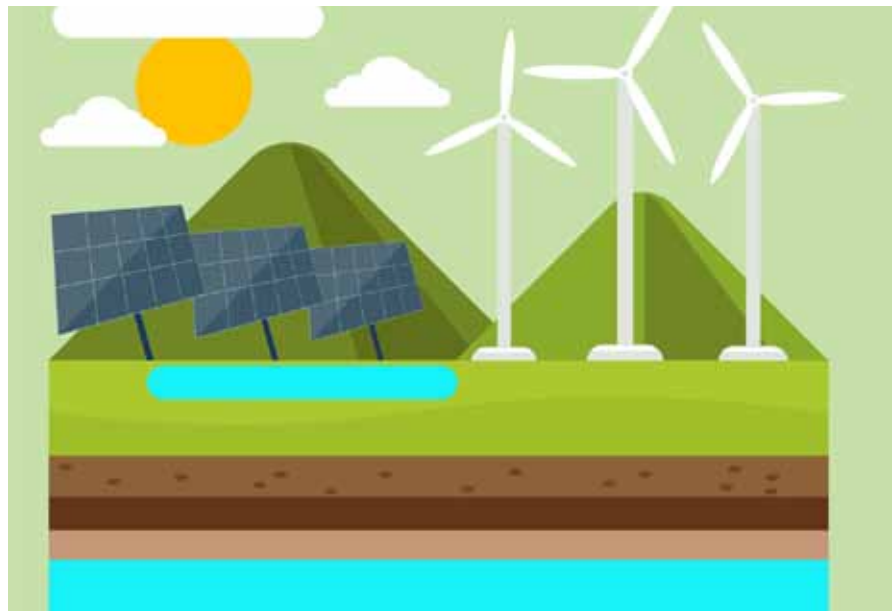
**R**enewable energy technology is so diverse and evolving so quickly that it can be difficult to determine if a resource is going to be the right fit for your power portfolio. Utility resource managers can gain a better understanding of the capabilities and constraints of different renewable technologies from a new on-demand training series from the Federal Energy Management Program (FEMP).

This updated series of e-learning courses, focused on renewable energy technology applications for federal sites, will have much to offer utility professionals as well. Participants will learn how to evaluate and select the technologies that are most effective for their specific sites. Presentations will also cover integration of intermittent renewable energy into the grid. Each course offers 0.1 CEU (continuing education unit).

## COVERING BASES

The series highlights six forms of renewable energy and concludes with a course addressing interconnection.

- **Photovoltaics (PV) and Daylighting Technology:** Explore common photovoltaic technology applications and components and learn methods for maximizing daylight penetration and distribution in interior spaces.
- **Solar Thermal and Concentrating Solar Power Technology:** Discover the non-PV applications for solar energy, such as solar ventilation air preheating, solar water heating, types of solar collectors, dish engine technology, parabolic troughs, linear Fresnel systems and power towers.
- **Wind Energy Technology:** Learn about types of towers, and scale-oriented wind applications, and find out how to evaluate wind resources and site turbines.



- **Biomass Technologies:** Gain an understanding of biomass sources and conversion processes, including direct combustion, gasification and pyrolysis.
- **Hydropower and Ocean Energy Technologies:** This overview of hydropower covers dams, micro-hydro and run-of river, as well as ocean energy technologies for wave, tidal, current and ocean thermal energy conversion.
- **Geothermal Energy Technologies:** Discover the benefits and challenges of open- and closed-loop ground source heat pumps as well as dry steam, flash steam and binary cycle geothermal power technologies.
- **Integration of Renewable Energy Systems:** Complete the series with a look at net metering, grid integration challenges and solutions at the building, substation, grid and utility levels.

## PARTNERING WITH BEST

The instructor for this series is Andy Walker, Ph.D., principal engineer at the National Renewable Energy Laboratory. At NREL, Walker conducts

engineering and economic analysis of renewable energy projects for FEMP and other non-governmental clients.

FEMP is hosting the series in partnership with the Whole Building Design Guide, a program of the National Institute of Building Sciences. These interactive courses are designed to support the Federal Building Personnel Training Act competencies, and to provide up-to-date information needed by federal energy, water and sustainability managers.

## AT YOUR CONVENIENCE

Like all FEMP e-learning seminars, the Renewable Energy Technology Applications series is free to all interested individuals, and you do not need to travel to attend. The courses are available on-demand, and are self-tracking and self-paced. You will need a computer with Google Chrome, Firefox 4.0+, Internet Explorer 7.0+ or Safari, and the Adobe Flash player or Adobe Flash 9+ plug-in to participate.

There is no better time—or price—to expand your knowledge of the expanding energy choices available to utilities. Register today, or contact the FEMP training manager at 202-586-7753 for more information. ⚡

# APPA WEBINAR SERIES EXPLORES KEY ACCOUNT DEVELOPMENT

February 24

March 24

April 23

12 – 1:30 p.m. MST

The American Public Power Association (APPA) is presenting three webinars based on the new APPA Key Accounts Field Manual, beginning Feb. 24.

The Art of Key Account Program Development and Enhancement will provide practical tips and guidance for public utility key account professionals on the three primary issues encountered when developing and maintaining effective programs:

- Time
- Gaining buy-in
- Financial resources

Participants will also receive a logic model worksheet to help them navigate the process of goal setting and budget development.

The series focuses on getting your utility's key accounts program aligned with your leadership, your community and your personal skill set. The instructor will discuss how to take ownership of a program and how key accounts professionals can gain support for their efforts.

The webinar topics include:

- **Starting from within**—Leveraging individual strengths to develop a key accounts program that fits personal skill sets
- **Discovering clarity**—Removing obstacles in order to identify the true need of a key accounts program for specific communities



- **Defining success**—Setting proper expectations to ensure success
- **Gaining buy-in**—Getting the right people on board to elevate the key accounts program

Webinar instructor Erick Rheam is the coauthor of the key accounts manual, a resource for key account representatives and those who manage a utility's key accounts program. Rheam currently serves as vice president of business development for Automated Energy, a web-based energy information provider in Bloomington, Indiana. His previous experience in the utility industry includes working as a key accounts coordinator and key accounts manager for municipal utilities in Indiana and Colorado.

This webinar is worth 1.5 Continuing Professional Education (CPE) credits, .2 Continuing Education Units (CEU) or 1.5 Professional Development Hour (PDH) credits in the CPE Field of Study, Specialized Knowledge & Applications. Only participants who register and whose attendance is confirmed by the webinar report log will receive the completion certificate.

The cost for attending the webinar series is \$200 for APPA members, or \$400 for nonmembers. APPA members may register for individual webinars for \$89 per webinar; the individual cost for nonmembers is \$179.

Key accounts representatives and program managers can register online or contact Sara Krautbauer at 202-467-2965. Links to all presentations and an audio recording will be sent out shortly after the webinar occurs. ⚡